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Thesis Title:

Statistical Analysis and Reduction of Multiple Access Interference in MC-CDMA

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Citation:

The primary objectives of this thesis were to analyze the multiple access interference in asynchronous MC-CDMA systems and to develop robust techniques for reducing the MAI effect. In this research, a new statistical model of MAI is developed. This new model enables a more practical MAI derivation. Moreover, the application of this model can significantly reduce the computation load during simulations. As the solutions of MAI problems, this study introduced subcarrier frequency hopping and polarization diversity to MC-CDMA systems. It was found that both techniques can successfully reduce the MAI power and improve the performance of asynchronous MC-CDMA systems.